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UNITED STATES DEPARTMENT OF AGRICULTURE
Weather Bureau
Washington

Office of the Chief

December 15, 1936.

INSTRUCTIONS FOR SIX-HOURLY AIRWAY SERVICE, BEGINNING
JANUARY 15, 1937.

DEC 2 1936

1. Effective January 15, 1937, an expanded system of 6-hourly observations will be placed in operation and provision made for their collection and distribution. A number of changes in present rules and procedure are involved and are outlined in these instructions. It falls upon the Official in Charge of any station concerned to see that the provisions of this circular are complied with at his station. Stations concerned can be determined easily by careful study of the circular.

General Information

2. Appropriations were made for the establishment of approximately 120 new 6-hourly reporting stations during the fiscal year 1937. It is the purpose to make the reports from these new stations of benefit in all the activities of the bureau insofar as may be practicable, and to provide more detailed data for use in the preparation of meteorological charts. To the latter end, the Weather Code 1931, has been revised and distributed.

3. This revised code will be used in the telegraphing of all of the regular 6-hourly and/or SGL Danda observations at the 2:00 and 8:00 a.m. and/or p.m., E.S.T., periods. Section XV of Circular N, 1935, accordingly is hereby revoked, effective January 15, 1937. Selections of reports sent by telegraph to the Chicago center (Weather Bureau Office) will be transmitted by teletype in the "MR" periods of the National Communications Schedule. This Schedule is

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being revised to accommodate all changes outlined herein and will be issued prior to January 15, 1937.

4. A group of selected reports will be transmitted in sequence by authorized airway radio and teletype stations during the teletype "CS" periods, beginning at 7:30-7:40 and 1:30-1:40 a. m. and p. m., E. S. T., using the abbreviated word code. This will be done to avoid a complicated relay system and to insure that a sufficient number of observations along airways will be available.

5. The special word code sequence will be relayed to all teletype and radio circuits in the "CS" periods of the National Communication Schedule, or during idle sequence periods. The regular symbolized sequences may be relayed at the 6-hourly periods to immediately adjacent circuits during idle sequence periods, provided agreement is reached between the Weather Bureau general supervising official and the District Manager as to the necessity for such relays.

6. No material change will be made in the present SGL Danda distribution by telegraph, except that selections from some of the newly-established 6-hourly stations will be made available to district forecast centers and to some city offices, if practicable.

Instructions For Making Code Sequence (CS) Transmissions

7. Airway and airport stations listed below shall enter coded reports in the special code sequences (abbreviated word-code) beginning at 1:30 and 7:30 a. m. and p. m., E. S. T., transmitted over the teletype or radio circuit on which the station is located in accordance with the order indicated and instructions

regarding this outlined in a Bureau of Air Commerce circular soon to be issued. Stations at junction points of two or more circuits will enter their reports only in one sequence on one circuit terminating or passing through that point as will be directed specifically by the Bureau of Air Commerce circular. This will avoid repetition of reports. SPECIAL NOTE: In the event that any station maintaining a radio watch for aircraft calls or required to broadcast Notices to Airmen (Notams) or special weather reports, should receive such a call or need to make such a broadcast during the taking of one of these code sequence observations, such call or broadcast shall be given preference over the taking of the observations and if the observation cannot be taken thereafter, entry shall be made in the sequence "No observation aircraft call", "No observation broadcasting notam", etc. The taking of the observations, however, will be given priority over all routine activities of the station. The transmissions shall carry no heading as such, but since they will always be followed immediately upon completion of the relays, by the Chicago "MR" transmissions, the heading on the latter transmissions will serve to fix the time and date of the preceding "CS" transmissions.

HOURLY REPORTING STATIONS WHICH SHALL ENTER CODED REPORTS IN THE 6-HOURLY CODE SEQUENCES

AP Abilene, Tex.	LE**La Crosse, Wis.
AF Advance, Mo.	LQ Las Vegas, Nev.
AZ Albany, N. Y.	LI Little Rock, Ark.
AB Albuquerque, N. Mex.	LV Louisville, Ky.
AQ Amarillo, Tex.	MA *Madison, Wis.
AG Atlanta, Ga.	MF Medford, Oreg.
BK *Baker, Oreg.	PS Memphis, Tenn.
BD Bakersfield, Calif.	MM Miami, Fla.
BZ Big Spring, Tex.	MY**Miles City, Mont.
BI Billings, Mont.	MF Milford, Utah
BH**Birmingham, Ala.	MX**Missoula, Mont.
RK**Bismarck, N. Dak.	MS**Mobile, Ala.
BE Boise, Idaho	MO Moline, Ill.
BW Boston, Mass.	UG**Montgomery, Ala. via Maxwell Field
BJ Buffalo, N. Y.	MR Murfreesboro, Tenn.
BU Burbank, Calif.	NK Newark, N. J.
KM**Camden, N. J.	NO New Orleans, La.
NU Chanute Field, Ill.	NQ North Platte, Nebr.
CS Charleston, S. C.	OA Oakland, Calif.
CX Cheyenne, Wyo.	OL Oklahoma City, Okla.
CG Chicago, Ill.	OH Omaha, Nebr.
CC Cincinnati, Ohio	PB Pembina, N. Dak.
CV Cleveland, Ohio	PH Phoenix, Ariz.
CO Columbus, Ohio	PT Pittsburgh, Pa.
DL Dallas, Tex.	PO Portland, Oreg.
DV Denver, Colo.	PU Pueblo, Colo.
DM**Des Moines, Iowa	RA**Raleigh, N. C.
DO Detroit, Mich.	RG Redding, Calif.
EL Elko, Nev.	RP Reno, Nev.
EA Elmira, N. Y.	RW**Richmond, Va.
EO El Paso, Tex.	RT Rock Springs, Wyo.
FO Fargo, N. Dak.	RB Roseburg, Oreg.
FT Fresno, Calif.	LS St. Louis, Mo.
GW Greensboro, N. C.	ZP St. Paul, Minn.
GD Greenwood, Miss.	SL Salt Lake City, Utah
HL Helena, Mont.	ZN**San Antonio, Tex.
HM Helmer, Ind.	SQ San Diego, Calif.
HU Houston, Tex.	SH**Savannah, Ga.
IF Idaho Falls, Idaho	SA Seattle, Wash.
ID Indianapolis, Ind.	ZH**Shreveport, La.
JA Jackson, Miss.	SO Smiths Grove, Ky.
JX Jacksonville, Fla.	SU Spartanburg, S. C.
KC Kansas City, Mo.	SM Spokane, Wash.
KW**Key West, Fla.	ZD**Springfield, Ill.
KR Kirksville, Mo.	
KX**Knoxville, Tenn. (When available later)	ZF**Springfield, Mo.
KY Kylertown, Pa.	SR**Syracuse, N. Y.

TI	Titusville, Fla.	WA	Washington Airport, Va.
TZ	Tucson, Ariz.	WD	Wichita, Kans.
TS	Tulsa, Okla.	WO	Winslow, Ariz.
TY	Tylertown, Miss.		

* Indicates station located in city office. All other stations are at airports at places named.

** Indicates airway station has no mercurial barometer and station pressures for checking aneroids will be obtained from Weather Bureau city office in same city.

8. The stations listed above to enter coded reports in the special sequences will not add 6-hourly symbolized data to airway sequence reports for that hour, but will add such ^{current} data at the intervening 3-hourly periods.

9. After the special abbreviated word-code sequences are run on the individual circuits, they will be relayed to other circuits in such a manner as to provide national distribution of these. This distribution will be outlined in a Bureau of Air Commerce circular soon to be issued.

Instructions For Relaying Regular Sequences at 6-Hourly Periods

10. Following the eleven minutes of coded sequence transmissions and relays as outlined above, the regular sequences of airway reports will begin at 41 minutes past the hours of 1:00 and 7:00 a. m. and 1:00 and 7:00 p. m., E. S. T. After completion of these sequences on each particular circuit at those times, they may be relayed to adjacent circuits, in accordance with arrangements agreed upon between the Weather Bureau officials and the District Manager in accordance with the provisions of paragraph 5 foregoing. Idle sequence periods will be utilized in making these

relays and, in the case of the "brown" sequence periods for continuing the relays of the special word-code sequences. All this will be accomplished in the regular sequence periods extending from 41 minutes past one hour to 10 minutes past the next hour.

Instructions for Continuance of Code Sequence Relays
After Completion of the Regular Sequences.

11. Beginning with 11 minutes past 2:00 and 8:00 a. m. and 2:00 and 8:00 p. m., E. S. T., relays of the special word-code sequences will be continued, if necessary, to the termination of 2:23 and 8:23 a. m. and p. m., E. S. T.

Instructions for Making National Transmissions (MR) From Chicago.

12. Beginning at 2:24 and 8:24 a. m. and p. m., E. S. T., Chicago will start immediately a national transmission over all teletype and radio circuits of the following list of reports (in abbreviated word-code and with teletype designators in place of station names, as outlined in paragraph 25). This list will supersede any present list being transmitted from Chicago at those times. This transmission shall carry a heading consisting of the Chicago designator, the abbreviation "MR" for map reports, and the time and date in figures, e. g., "CGMR 080001." (These reports will be received at the Chicago City Weather Bureau Office and there placed on the local teletype circuit to the airport. From the latter point, they will then be distributed nationally by automatic teletype and radio transmissions).

List of Stations to be Transmitted From Chicago in "MR"
Transmissions

AN	Aberdeen, S. Dak.	GV	Glendive, Mont.
PAK	Akron, Colo.	GK	Goodland, Kans.
HAL	Alger, Ohio	GZ	Grand Canyon, Ariz.
PAX	Alpena, Mich.	PGJ	Grand Junction, Colo.
PAP	Alpine, Tex.	GR	Grand Rapids, Mich.
PBA	Batesville, Ark. (when avail- able)	GT	Great Falls, Mont.
PBJ	Bemidji, Minn.	GB	Green Bay, Wis.
HBR	Brady, Tex.	PGR	Green River, Utah
JI	Brownsville, Tex.	HRB	Harbor Beach, Mich.
JG	Burlington, Vt.	HV	Havre, Mont.
HBL	Burwell, Nebr.	PHK	Hinckley, Minn.
HCZ	Carrizozo, N. Mex.	HHN	Houghton, Mich.
OW	Casper, Wyo.	HHO	Houghton Lake, Mich.
PCH	Chadron, Nebr.	HR	Huron, S. Dak.
PCC	Charles City, Ia.	HIN	Independence, Calif. (8 a.m. and p.m., only)
PCL	Clayton, N. Mex.	PIF	Iowa Falls, Ia.
HCN	Clinton, Mo.	PKA	Kalispell, Mont.
PCR	Concordia, Kans.	KX	Knoxville, Tenn.
CR	Corpus Christi, Tex.	LC	Lake Charles, La.
HCG	Craig, Colo.	PLA	Lamar, Colo.
PCP	Crownpoint, N. Mex.	PLD	Lander, Wyo.
HCU	Cut Bank, Mont.	LH	Laredo, Tex.
PDR	Del Rio, Tex.	PLV	Leesville, La.
PDL	Delta, Utah	HLW	Lewistown, Mont.
PDV	Devils Lake, N. Dak.	HILB	Lubbock, Tex.
PDC	Dodge City, Kans.	HLN	Ludington, Mich.
HDN	Dothan, Ala.	PML	McAlester, Okla.
PDU	Dubois, Ida.	PMB	Marshfield, Ore. (8 a.m. and p.m., only)
PDQ	Dubuque, Iowa	UM	Meridian, Miss.
HDS	Duchesne, Utah	PMI	Minot, N. Dak.
DH	Duluth, Minn.	PMP	Mobridge, S. Dak.
PDG	Durango, Colo.	PMA	Modena, Utah
PEA	Eastport, Me.	HMQ	Mogollon, N. Mex.
EY	Elk City, Okla.	HMV	Monroeville, Ala.
EK	Elkins, W. Va.	HMZ	Monticello, Ark.
HES	Ellis, Kans.	MT	Moran, Kans.
PEX	Engle, N. Mex.	HMY	Mt. Ayr, Iowa
PEC	Escanaba, Mich.	NT	Navasota, Tex.
PEU	Eureka, Calif. (8 a.m. and p.m., only)	PNL	Needles, Calif. (8 a.m. and p.m., only)
EV	Evansville, Ind.	HNC	Newcastle, Wyo.
PFO	Florence, Ala.	PNH	North Head, Wash. (8 a.m. and p.m., only)
FR	Fort Smith, Ark.	HLS	Palestine, Tex.
FW	Fort Wayne, Ind. (8 a.m. and p.m., only)	HPS	Paris, Tenn.
PGA	Garrison, N. Dak.	PPK	Parkersburg, W. Va.
PGL	Glasgow, Mont. (Fort Peck)		

HPF	Park Falls, Wis.	PTA	Tatoosh Island, Wash. (8 a.m. and p. m., only)
PPH	Phillipsburg, Kans.	PTU	Tonopah, Nev.
PX	Pierre, S. Dak.	TO	Topeka, Kans.
HPI	Pikeville, Ky.	TD	Trinidad, Colo.
PQ	Pocatello, Ida.	PVL	Valentine, Nebr.
PC	Ponca City, Okla.	PWA	Washington, Ind.
PPR	Prescott, Ariz.	WU	Watertown, S. Dak.
RZ	Rapid City, S. Dak.	HWU	Wausau, Wis.
PRI	Riddle, Nev. (when available)	HWP	West Plains, Mo.
PRO	Rolla, Mo.	WF	Wichita Falls, Tex.
PRW	Roswell, N. Mex.	PWS	Williston, N. Dak.
ZJ	St. Joseph, Mo.	HWI	Winchester, Ky.
HSM	Salmon, Ida.	PWM	Winnemucca, Nev.
ZK	Santa Fe, N. Mex.	YA	Yakima, Wash. (8 a.m. and p.m., only)
PSS	Sault Ste. Marie, Mich.	PYE	Yellowstone, Wyo. (8 a.m. and 2 and 8 p.m., only)
ZY	Sheridan, Wyo.	PYU	Yuma, Ariz.
YX	Sioux City, Ia.		
YL	Sioux Falls, S. Dak.		
PSM	Springfield, Minn.		
HST	Stearns, Ky.		

Canadian (8:00 a. m. and 8:00 p. m., only, no ceiling-visibility-dew point words)

PBE	Battleford	HMI	Minnedosa
PCK	Calgary	UL	Montreal
HCO	Coppermine	PTZ	Pas
HDA	Dawson	PPA	Prince Albert
PED	Edmonton	PPZ	Prince Rupert
PET	Estavan	PQA	Qu'Appelle
PKM	Kamloops	PQS	Swift Current
HLA	Langara Island, B. C.	WG	Winnipeg
HMH	Medicine Hat		

13. Transmission of reports named in "12" above will be continued, if necessary, until the next regular airway sequence periods which begin at 41 minutes past 2:00 and 8:00 a. m. and 2:00 and 8:00 p. m., E. S. T.

14. Following at 3:11 and 9:11 a. m. and 3:11 and 9:11 p. m., E.S. T., Chicago will resume the transmission of the above group of reports and will continue, if necessary, until the termination of 3:20 and 9:23 a. m. and p. m., E. S. T. If completed prior to this, Chicago shall transmit the word "end" and ring one bell.

Instructions For Making Simultaneous (XR) Map Report Transmissions From Chicago and Oakland at all 6-Hourly Periods.

15. Special groups of far eastern and far western reports as named below will be received at Chicago and Oakland, respectively, but shall not be included in any of the transmissions outlined above; instead they shall be separated and held at those points pending the transmission outlined later on in Paragraph 16.

CHICAGO (2 a. m. and p. m. and 8 a. m. and p. m. periods, E. S. T.)

PPL	Apalachicola, Fla.	UN	Macon, Ga.
KT	Atlantic City, N. J.	PMR	McRae, Ga.
AA	Augusta, Ga.	HMM	Mt. Mitchell, N. C.
BB	Bangor, Me.	HMT	Mt. Washington, N. H.
HCA	Canton, N. Y.	PW	Portland, Me.
KN	Charleston, W. Va.	HRU	Rumford, Me.
CI	Columbia, S. C.	HSA	Salisbury, Md.
PLW	Delaware Breakwater, Del.	ZZ	Scranton, Pa.
PFL	Flat Top, W. Va.	TM	Tampa, Fla.
FI	Fort Meyers, Fla.	PTH	Thomasville, Ga.
PER	Frostburg, Md.	PUR	Urbanna, Va.
PGI	Greenville, Me.	PWH	Whitehall, N. Y.
	Greenville, N. C.	WH	White River Jct., Vt.
PHA	Hatteras (WB), N. C.	PWI	Wilmington, N. C.
PKK	Knapp Creek, N. Y.	PWY	Wytheville, Va.
PLK	Lake Placid, N. Y.		
LB	Lynchburg, Va.		

8 a. m. and p. m. periods, only

PAS Asheville, N. C.
PNA Nantucket, Mass.

OAKLAND (2 a.m. and p.m. and 8 a. m. and p. m. periods, E. S. T.)

PUS	Austin, Nev.	HGV	Grangeville, Ida.
PBD	Bend, Oreg.	HAW	Hawthorne, Nev.
FBI	Blaine, Wash.	PVW	Lakeview, Oreg.
HBO	Bonniers Ferry, Ida.	HMP	Ilwacips, Wash.
HBK	Brookings, Oreg.	PNP	Newport, Oreg.
PBS	Burns, Oreg.	HOR	Oroville, Wash.
HCL	Colville, Wash.	HPO	Point Arena, Calif.
PES	Esterio, Calif.	HSU	Susanville, Calif.
PFB	Fort Bragg, Calif.		

2 a. m. and p. m. periods, only

PEU	Eureka, Calif.	PNH	North Head, Wash.
HIN	Independence, Calif.	PTA	Tatoosh Island, Wash.
PNB	Marshfield, Oreg.	PFI	S. E. Farallon, Calif.
PNL	Needles, Calif.	HSN	San Nicolas, Calif.

16. At each of the 6-hourly periods, after Chicago transmits the word "end" and the one-bell signal indicating the end of the National Transmissions, or the 21st minute after 2:00 and the 24th minute after 8:00 a. m. and p. m., E. S. T., is reached, Chicago and Oakland shall begin immediately the transmission of the respective groups of reports shown in "15" above, Chicago transmitting its list of reports to all circuits east of Omaha, Kansas City and Murfreesboro, and Oakland transmitting its list to all circuits west of those points. An exception is that the eastern reports will not be transmitted to the Chicago-Fargo circuit. (See Paragraph 20 below). All transmissions referred to in this paragraph (16) will be simultaneous, will be in abbreviated word-code, and will carry a heading consisting of the designator for the point of origin, the abbreviation "XR" and the time and date in figures, e. g., "OA XR 080001", "CG XR 080001", etc.

Instructions for Telegraphing Special Far Western Reports
Between West Coast Airway Forecast Centers

17. Some 6-hourly reports needed only at Pacific Coast stations are now being received at Oakland and Burbank in special messages. To provide for such of these as are not listed herein to be distributed by teletype, Oakland and Burbank will forward the following respective groups of reports by telegraph to each other at all 6-hourly periods as soon as practicable after the reports are available:

Oakland to "Airway Observer, Burbank, Calif.":

PSY	San Pablo	HTF	Taft
PTR	Tracy	PHO	Hollister
PLO	Los Banos	PMH	Mt. Hamilton
PME	Mendota		

Burbank to "Airway Observer, Oakland, Calif.":

PMW	Mt. Wilson	PCO	Coalinga
PON	Ontario	PKC	King City
ZR	Santa Barbara		

18. The Hood River, Oreg. (HHR) reports will be telegraphed or telephoned to Portland, Oreg., and no further distribution of these reports will be made. These messages and those listed in "17" above, shall be charged to "Commercial Airways" on the telegraph or telephone abstracts or vouchers.

Instructions For Making Additional Simultaneous (XR) Map
Report Transmissions From Chicago and Oakland at the
8:00 a. m. and p. m. 6-Hourly Periods

19. Up to the foregoing, the transmission procedure will, except for some variation in the list of reports as shown in Paragraph 15 and the exact periods of transmission, be the same for all 6-hourly periods, i. e., 2:00 a. m., 8:00 a. m., 2:00 p. m., and 8:00 p. m. However, at the 8:00 a. m. and p. m. periods, additional groups of "XR" reports are available and must be transmitted. To accomplish this, the following procedure shall obtain:

(a) Chicago shall continue transmission without entry of an additional heading, until all available of the following list of "XR" reports are sent, these reports going over the same circuits as outlined for the special group of reports listed under paragraph 16 above.

PAA	Aklavik	PPF	Port Arthur
PHL	Churchill	PNQ	Moosenee
PCW	Cochrane	HCR	Cape Race
QB	Québec	PHB	Hamilton, Bermuda
PPY	Parry Sound	PFP	Father Point
PSQ	Southampton	PZN	Fort Simpson
PUX	Sioux Lookout	PFV	Fairview
PWR	White River	PFS	Fort Smith
PTO	Toronto	PHX	Halifax

(b) After Chicago finishes the "XR" reports from that point, the operator there shall write "end" and ring one bell.

(c) Upon receiving the word "end" and the one-bell signal, the operator at Washington will begin immediately the transmission of the following group of Washington "XR" and ship reports, preceding this by a heading consisting of the Washington designator, the abbreviation "XR", and the time and date, e. g., "WA XR 080001":

HBI	Belle Isle	HLV	Haileybury
HCI	Chesterfield	HRR	Harrington
HDO	Dolbeau	PNT	Nottingham
PDT	Doucet	PRE	Resolution

10 selected Atlantic and Gulf ship reports.

These will go to all circuits east of Omaha, Kansas City, and Murfreesboro, except the Chicago-Fargo circuit.

(d) Washington will then write "end" and ring one bell whereupon Albany will transmit the following list of reports to all circuits east of Omaha, Kansas City, and Murfreesboro, except the Chicago-Fargo circuit, preceding this by a heading consisting of the Albany designator, the abbreviation "XR", and the time and date, e. g., "AZ XR 080001":

PKG	Kingston	PPE	Petawawa
PSA	San Maur	PWT	Cartwright
PLU	London	PZJ	St. George
OW	Ottawa	PFQ	Fogo

Albany will then write "end" and ring one bell.

(e) Cape Hatteras (NHA) and Cape Lookout (NCL) reports at 8:00 a. m., 2:00 p. m., and 8:00 p. m., will then be placed on the circuit at Richmond, Va., and transmitted to all circuits east of Omaha, Kansas City, and Murfreesboro, except the Chicago-Fargo circuit. This shall be preceded by the usual type of heading, except that the Richmond designator will be used, e. g., "RW XR 080001".

(f) After finishing the transmission of the special group of reports listed under paragraph 15 above, Oakland will proceed immediately and without entry of an additional heading with the transmission of the following group of "XR" and ship reports, if available, from that point and will continue until these are finished:

PHU Honolulu	SZ Sacramento
PNM Nome	HPA Point Arguello
PBO Barrow	PFI S. E. Farallon
PFA Fairbanks	PAA Altlavik
PPP St. Paul	PHL Churchill
PUT Dutch Harbor	PZN Fort Simpson
PCD Cordova	PFV Fairview
PJU Juneau	PFS Fort Smith
PKK Ketchikan	PAT Atka
PKD Kodiak	FTM Fort Norman
PGG Prince George	HCI Chesterfield
PQB Bethel	HMO Mayo

Available ship reports and positions of highs and lows at sea.

These reports will go to all circuits west of Omaha, Kansas City, and Murfreesboro, and to the Chicago-Fargo circuit as provided under "20" below.

Instructions For Transmission of Far Western and Ship Reports From Seattle to Chicago Via Radio and Teletype

20. In order that Fargo, St. Paul, and Chicago may receive all western 6-hourly reports necessary for service at those points, upon

receipt of the first individual report of the groups given under 15 and 19(f) above, at Seattle, that station will begin transmission of these reports by radio to Fargo and will continue to end of the "XR" period. The operator at Fargo will, beginning immediately upon receipt of the first report from Seattle, place these reports on the Chicago-Fargo teletype circuit. At the 2:00 a. m. and p. m. periods, only the list given under "15" above would, of course, be transmitted.

Relays by Radio to Spokane, Billings, El Paso, Houston,
New Orleans and Abilene

21. Relays of all possible reports included in the entire program outlined above within the limits of available time will be made by radio to Spokane, Billings, El Paso, Houston, New Orleans and Abilene. Necessary changes to accommodate the foregoing will be made in the National Communication Schedule.

Instructions For Telegraphing Reports

22. The list of reports designated under "15" above, to be transmitted by teletype from Oakland, will in each case and at the periods indicated, be telegraphed direct to that station by special message addressed to "Airway Observer, Oakland, Calif." At 8:00 a. m. and 8:00 p. m., reports from other stations (unless specifically excepted and excluding those listed to be transmitted by teletype and radio under "7" above) will be telegraphed as SGL Danda reports to "SGL Danda, Chicago, Ill." or as special messages addressed to "Observer, Chicago, Ill." Specific directions concerning this will be issued later to the supervising stations. At 2:00 a. m. and 2:00 p. m., reports from all stations other than those specifically listed herein

to be telegraphed direct to Oakland, Portland, or Burbank, will be telegraphed to "Observer, Chicago, Ill.", using Western Union or Postal Telegraph Company facilities as later will be indicated for each station involved. Airway and other officials organizing the 6-hourly service, as soon as they receive such instructions, shall direct the observers at both new and present 6-hourly stations, how to transmit their reports. The local telegraph officials at all points shall be contacted and thoroughly informed in order that no misunderstandings may arise.

Form For Entry of Observational Data

23. A form will be provided which will facilitate the entry, computing and coding of data in the observations. This form (1083 Met'l.) shall be used at all stations for entry of data pertaining to both 6-hourly and SGL Danda observations which are subsequently enciphered and transmitted in the revised word code.

Instructions For Making Records of Telegraphed Reports

24. Coded SGL Danda messages shall be entered on Form 3070-Tel. Coded reports sent by special message shall be entered on Form 3024-Tel. (pink blank). The letters in each word in both forms should be printed in by hand if the station is not equipped with a typewriter. Supplies of these forms are to be furnished to each station by the supervising station concerned. Supervising stations are to arrange for having proper abstracts or vouchers rendered for accounting in accordance with current instructions.

Instructions For Abbreviating Coded Reports For Transmission by Teletype or Radio

25. In order to save time on the teletype and radio circuits, all coded reports placed thereon, at any point, must conform to the following:

- A. Teletype designators will be used in all cases instead of station names.
- B. All code words of one syllable will be sent complete, e. g., "taste", "tints", "Faith", "Birth", etc.
- C. All code words of four letters or less will be sent complete, e. g., "Damp", "Beak", "Dove", "Raws", "Nut", "Gag", etc. If such words end in "s" they will also be sent complete.
- D. All thunderstorm and ceiling-visibility-dew point words will be sent complete, e. g., "Wabash", "Work", "Bismy", "Gossu", etc.
- E. All words for figures, such as "one", "eight", "thirty", etc., will each be transmitted in figures followed by a space.
- F. Letters shall be selected for transmission from code words of more than one syllable and more than four letters, except thunderstorm and ceiling-visibility-dew point words, (see "D" above), as follows:
 - (a) The first consonant, if any, preceding the first vowel of the code word.

- (b) The first vowel.
- (c) The consonant immediately preceding the second vowel.
- (d) The second vowel.
- (e) The consonant "s" if the word ends in "s".

For example, given the word "ensue", there is no "consonant preceding the first vowel", the "first vowel" is "e", the "consonant immediately preceding the second vowel" is "s", the "second vowel" is "u"; therefore the word to be sent by teletype would be "ESU". Given the word "Darraigns", the "first consonant preceding the first vowel" is "d", the "first vowel" is "a", the "consonant immediately preceding the second vowel" is "r", the "second vowel" is "a", the word ends in "s"; therefore the word to be sent by teletype would be "DARAS", etc.

26. The foregoing supersedes instructions contained in the Circular "Transmission of SGL Danda Reports by Teletype", dated January 15, 1936.

Time of Filing Reports

27. All stations listed herein, except those which were filing the regular SGL Danda reports at 3:00 a. m. and/or 3:00 p. m., E. S. T., periods, prior to January 15, 1936, and except Alaskan, Canadian, Mexican and ship stations, which will telegraph reports in accordance with the terms of this circular, shall file such reports, either SGL Danda or special messages, not later than 20 minutes preceding the hours

of 2:00 and 8:00 a. m. and 2:00 and 8:00 p. m., E. S. T. It is absolutely essential that this be done, for reason that these reports will be in addition to those now normally received at the distribution center at Chicago and that station must have time to clear these reports by teletype prior to receipt of the regular list of reports received there. Supervising officials are requested to make certain that this is carried out. As emphasized foregoing, this will not affect or change in any way the time of filing SGL Danda reports from first- and second-order stations which are now entering reports in that system.

Instruction of Observers

28. All stations rendering reports in coded form at the 6-hourly periods shall encipher such data at the various observation times in word code as is directed in the revised Weather Code, irrespective of the method of transmission of the reports. These data vary somewhat between the observations at different times of the day and, therefore, a careful study must be made and complete understanding of the instructions contained in the revised Weather Code must be had by all observers enciphering such observations. At points where the observations are to be taken at the airport by other than Weather Bureau commissioned personnel and there is a local Weather Bureau Office, the Official in Charge should make arrangements to instruct the observers or Commerce personnel. At other points, i. e., where there is no local Weather Bureau Office, general supervising officials will make arrangements for the instruction of the observers. A letter concerning this has been forwarded to the general supervising stations.

Definition of Types of Stations Named in the
Revised Weather Code

29. For the information of all concerned, only two types of stations are mentioned in the revised code book, viz., first- and second-order. "First-order" means, of course, any station to which Weather Bureau commissioned personnel are assigned (this would include Weather Bureau airport stations), and "second-order" means any station manned by other than Weather Bureau commissioned personnel.

Charging of Telegraph or Telephone Tolls

30. The telegraph or telephone tolls for all 6-hourly reports sent in a special message by such means shall be charged to "Commercial Airways" on the telegraph or telephone abstract.

Instructions For Obtaining Sea-Level Pressures at Stations Not Equipped With Mercurial Barometers, But Located Near Weather Bureau Offices.

31. Action has been taken to furnish such necessary equipment to hourly-reporting airway stations which will render coded reports as will be needed in taking those observations. Mercurial barometers are not being furnished to hourly airway stations where there is no such instrument at present, but where there is a Weather Bureau Office in the same city. Such stations are indicated by a double asterisk in the list given in paragraph 7. At such points, the following procedure shall be carried out by the personnel of the Weather Bureau Office in the city and the station at the airport:

(a) The "station pressure" determined by the mercurial barometer readings at the city office will be used as the "station pressure" for the aneroid barometer at the airport, i. e., a correction will be applied to the readings of the airport aneroid to

make it agree with the city office "station pressure".

(b) Each day immediately following the completion of the 8:00 a. m., E. S. T., observation at the city office, the official at that place will call the airport by telephone and give the observer the correct "station pressure".

(c) The direct reading of the airport station aneroid for the corresponding time should then be subtracted from the "station pressure" as reported by the city office. The difference thus obtained with its appropriate algebraic sign should then be posted conspicuously on a suitable form near the aneroid, giving the time and date of the observation for which this difference was current.

	C	-	A	=	D
8 a. m.	City office "station pressure"		Airport Aneroid Reading		Difference (C-A)
Example 1	28.76		28.92		-0.16
Example 2	29.12		29.07		+0.05

(d) For succeeding observations during the next 24 hours up to and including that nearest ^{the} 8:00 a. m. observation of the next day, the "station pressure" for the airport will be obtained as follows:

"Direct aneroid reading, (A)" plus "difference referred to in paragraph (c) above, with proper sign, (D)" = "station pressure, (B)".

2 p. m.	A	+	D	=	B
Example 1	28.88"	+	(-0.16")	=	28.72"
Example 2	29.01"	+	(+0.05")	=	29.06"

(e) The "sea-level reduced pressures" for the airport for all occasions will then be obtained by use of the city office reduction tables taking as the principal argument the "station pressure", (B) found in the manner indicated above. The temperature argument will be determined by taking the mean of the current and 12-hour preceding temperatures as recorded at the airport. A copy of the reduction tables should be furnished the substation and the observers instructed in the use thereof.

32. When carefully followed, the above outlined system will give quite accurate sea-level pressure values for the stations equipped with aneroids, and strict adherence to these instructions is therefore enjoined upon all concerned. The foregoing presupposes of course that the setting of the aneroid will not be changed nor the instrument tampered with in any manner.

Forms To Be Used For Recording Observations

33. It is necessary that data derived from the six-hourly observations be recorded and preserved for future reference and use. To accomplish this, the following forms shall be prepared at each station making such observations:

A. Form 1083-Met'l. (revised)

B. Form 1001-Met'l., or Form 1001A-Met'l.

Instructions For Use and Disposition of Forms

34. A supply of Form 1083-Met'l. will be distributed to all stations prior to the inauguration of the national distribution of six-hourly reports outlined in the foregoing. In its revised form, it shall be used for the recording of data at the time of taking the observation for all six-hourly and SGL Danda observations which are

subsequently enciphered in the revised word code and transmitted to other points or over designated circuits by telegraph, teletype, or radio. (This will include hourly airway stations entering coded reports in the "CS" transmissions). The headings will indicate the data and computations to be entered thereon, but the following specific directions are to be followed:

(a) The attached thermometer of the barometer will be read and recorded to the nearest one-half degree.

(b) The mercurial barometer will be read and recorded to the nearest 1/1000 inch; corrected aneroid barometer readings will be entered under "station pressure" to the nearest hundredth of an inch.

(c) The wet, dry, maximum and minimum thermometers will be read and recorded to the nearest tenth of a degree.

(d) Measurements of precipitation will be recorded to the nearest 1/100 inch.

(e) Ceiling will be recorded in feet.

(f) Visibility will be recorded in miles or fractions thereof.

(g) Dew point will be recorded to the nearest whole degree.

(h) Pressure change characteristics shall be entered in letter-symbols, i.e., "A", "B", "D" etc., as may be appropriate to the change in question.

35. The beginning or ending of precipitation and the beginning and duration of thunderstorms, which data are to be enciphered, will be entered to the nearest hour.

36. Maximum wind direction and velocity will be recorded only at those stations equipped with wind-register instruments.

37. All data and computations called for on forms shall be entered as indicated at all stations at all periods at which observations are made, insofar as may be practicable with due regard to instrumental equipment of the station, except that only stations now or in the future specifically instructed to do so shall enter the 5000-foot pressure computations. Form 1083-Met'l. shall not be used for the recording of sequence observations to which 6-hourly data in symbolized form are added at 6-hourly periods, nor shall it be used at intervening 3-hourly periods at any station. The initials of the observer taking the observation are to be entered invariably. Data may be entered in either pencil or ink. Carbon copies shall not be made. Clip boards for holding the forms may be furnished to stations not now having these. Special code sequence reports will not be entered on Form 1130.

38. Disposition of the Forms 1083 will be as follows:

(a) At stations manned by Department of Commerce personnel, or cooperative airway observers serving without pay, they will be forwarded to the Section Center for the State in which the station is located along with Form 1001A-Met'l. (instructions covering these forms follow) within ten days after the end of each calendar month.

(b) At airport stations manned principally by commissioned Weather Bureau personnel, and official observations for that city or area are not taken and entered on Form 1001-Met'l., the procedure will be the same as outlined in "a" above.

(c) At airport stations where the official observations for the city or area are taken and Form 1001 Met'l. is now or in

the future authorized to be prepared and forwarded to the Central Office, the Forms 1083-Met'l. will be forwarded to the Central Office in accordance with current instructions.

(d) At stations manned wholly or partially by paid airway observers, the Forms 1083-Met'l. shall be mailed to the direct supervising station for the preparation of payrolls within five days after the end of each calendar month. After the direct supervising station has prepared the payrolls, they shall mail the forms to the Section Center for the State in which the station in question is located not later than 15 days after the end of each calendar month.

(e) After necessary use of the Forms 1083 has been made at the Section Center, the Section Director may file or destroy these as he may deem advisable, provided that none of the forms are destroyed prior to three years from the end of the calendar month for which the data are current.

39. FORMS 1001-MET'L.: These, of course, will be prepared only at first- and second-order and airport stations/^{now or in the future} specifically authorized to do this. However, in order that records of the 2:00 a. m. and p. m., E. S. T. observations may be made, two additional pages, Nos. 16 and 17, are being added for this purpose. These pages will be the last in the Form and will be supplied as separates to stations concerned until new supplies of Form 1001 are printed. Data shall be entered on these pages for the 2:00 a. m. and p. m. observations but shall not be summarized, as it is intended that this will serve merely as a record of the observations. All entries on these pages will be made in ink in accordance with the

headings of the respective columns, copying data directly from Form 1083 in all applicable cases. It is to be clearly understood that nothing in these instructions shall be construed as changing any of the present instructions regarding the preparation of the regular pages of this Form, i. e., these will be prepared in exact accordance with present instructions to the individual stations concerned in all respects, the only variation being that stations making the 6-hourly observations at 2:00 a. m. and/or p. m., E. S. T., ^{periods} shall enter a record of these observations on pages 16 and 17.

40. FORMS 1001A-MET'L.: This form shall be used for the recording of 6-hourly observations at all stations making coded 6-hourly observations and which stations are not now or in the future authorized to prepare Form 1001-Met'l. (Stations adding 6-hourly symbolized data to sequence reports and not authorized herein to enter reports in the coded sequences are not considered as 6-hourly reporting stations in the meaning of these instructions.) These forms will be issued to 6-hourly stations prior to or shortly after the inauguration of the national distribution of coded reports with two pages (Nos. 16 and 17), added for the recording of the 2:00 a. m. and/or p. m., E. S. T. observations. The following shall govern the preparation and disposition of these forms.

(a) All entries shall be made in ink.

(b) Entries at any station shall be made only on pages 2, 3, 16, and 17, unless specifically directed to do otherwise.

(c) Entries shall be made on these pages as called for by the headings of the respective columns, using data recorded on Form 1083 where applicable so far as the instrumental equipment of the

station will permit, except that local noon visibility on page 2 will not be entered except at those stations making local noon observations.

(d) Stations that in accordance with foregoing instructions begin using this form on January 15, 1937, will not add or summarize data in the various columns on any page, i. e., only entries of data from the observations will be made and no sums or means computed. (This will include all six-hourly stations which were not preparing Form 1001 or 1001-A prior to January 15, 1937.)

(e) Highest and lowest values recorded on pages 2 and 3 will be underscored in red in all columns in which the letter "(b)" is inserted at the head of the column.

(f) Pages 2 and 3 shall be prepared as called for by the respective headings of the columns, except that local noon visibility (page 2) shall not be entered at stations not making local noon observations and maximum wind direction and velocity shall be entered only by stations having wind-registering instruments. If local noon observations are made, it should be noted that visibility on page 2 is to be recorded in accordance with the International Scale and not in miles. Amounts of precipitation entered will be for the six hours preceding the observation if the station renders 6-hourly observations, otherwise 12-hourly precipitation with explanatory note will be entered.

(g) Pages 16 and 17 shall be prepared as called for by the various headings. Ceilings are to be recorded in feet, visibilities in miles or authorized fractions; pressure change in hundredths of an inch with the characteristic indicated by the proper code letter; and amounts of precipitation in hundredths of inch occurring since the preceding 8:00 a. m. or p. m. observation (6-hourly amounts).

Thunderstorms are to be recorded only if occurring at the time of observations, the intensity to be written in the column provided.

(In general, it will be seen that the preparation of this form will require good judgment upon the part of the official giving instructions to the observer to the end that entries are made properly at all points. However, by strictly following the headings of the columns, no difficulty should be encountered.)

(h) Only pages 2, 3, 16, and 17 of Form 1001A will be used for entering the 6-hourly observations. The Section Director should be given a list by the general supervising stations of all the new stations (including airport and airway stations rendering reports in the 6-hourly code sequences entering observations on Forms 1083 and 1001A) in his district which will prepare only Forms 1083 and 1001A. If any of the new stations are located at former river stations, Forms 1006 shall continue to be rendered to the River District Center, but as all necessary climatological or agricultural data will be available on Forms 1083 and 1001A for the Section Centers, no other forms of this nature shall be required to be prepared by the observers.

(i) After Form 1001A has been prepared at the various stations, it shall be mailed to the Section Center of the State in which the station in question is located, not later than ten days after the end of each calendar month and there filed permanently.

(j) No copies of Form 1001A will be made.

(k) Instructions for entries of data on pages 16 and 17 of Form 1001 A will also apply to the preparation of these pages of

Form 1001.

41. FORM 1146-AER.: This form will not be prepared by any station making 6-hourly observations and equipped with mercurial barometers which prepares Form 1001 or 1001A, except those special stations rendering 5000-foot pressure data who will prepare it for that pressure level and transmit this to Oakland, Calif.

42. FORMS 1135-AER. Will continue to be prepared at stations adding 6-hourly symbolized data to airway sequence reports, but will not be prepared at any station making coded reports.

43. FORMS 1136-1141-AER. will not be prepared at any of the new 6-hourly stations. They will, of course, continue to be prepared at airport, airway, or six-hourly stations now designated to do this irrespective of whether or not such stations render coded reports by teletype or radio.

Supervision of and Property Accountability at
New 6-Hourly Stations.

44. Direct supervision of new 6-hourly stations may be assumed by the general supervising station for the district or recommended by them to be assigned to some other station. Property accountability for new instruments and equipment added for the taking of 6-hourly observations will be assigned to the direct supervising stations, but if cooperative, cotton region, corn and wheat or other agricultural station equipment is already at the station in connection with observations previously obtained from there for benefit of the Section Director, the accountability for this property shall remain with the Section Center, Proper note of this shall be entered invariably on Forms 1144-Aer., submitted for the stations.

Adding of Special 6-Hourly Data to Regular Sequence Reports

45. Present stations reporting hourly by teletype or radio and not making reports for entry in the code sequences will continue to add special data to the reports nearest the hours of 2:00 and 8:00 a. m. and p. m., E. S. T., in accordance with instructions contained in Section XIII of Circular N, 1935. Stations transmitting coded reports in the special sequence ahead of the regular sequence will not add 6-hourly data to the latter sequence reports.

Special Instructions Concerning Inclusion of
Ceiling-Visibility-Dew Point Code Words

46. All stations telegraphing coded 6-hourly reports at the 2 a.m. and 2 p.m., E. S. T., periods, and all stations entering coded reports in the "CS" transmissions for those periods shall include a ceiling-visibility-and-dew point -or-5000 foot-pressure code word in such reports. At the 8 a.m. and 8 p.m., E. S. T., periods, stations rendering both code-sequence and SGL Danda reports shall include a ceiling-visibility-and-dew point-or-5000 foot-pressure code word in the code sequence reports, but shall not include this in the SGL Danda reports; all other stations in the continental U. S. listed in this Circular shall include ceiling-visibility-and-dew point-or-5000 foot-pressure code words in their SGL Danda or other regular coded reports made at those times.

W. R. Gregg,
Chief of Bureau.

